Space Weather Forecast

Issued on Friday, 24 June 2022 at 01:12 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight chance of a Moderate-class flare. Slight chance of G1/Minor Storms mainly Day 2 (25 June).

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has remained Low over the past 24 hours, with several Common-class flares, including a long-period flare from the southwestern horizon, peaking around 23/1120 UTC. There remain issues with the availability of SDO satellite imagery at present, however there appear to be four sunspots on the visible disc. By far the largest remains the region in the northwest, which appears little changed, although the magnetic structure now seems to be more straightforward. Otherwise, the remaining groups appear small and simple, perhaps with some decay.
Analysis of front side potential Coronal Mass Ejection (CME) causing events has been somewhat hampered in the past 24 hours, however there were a few weak CMEs observed. Currently, none of these events are thought to be Earth directed.

Solar Wind / Geomagnetic Activity: The solar wind showed potential weak coronal hole influences. Wind speed varied mostly between 450-500 km/s, but with brief variations between 400-550 km/s. The Interplanetary Magnetic Field was mostly weak, but increased to peak at moderate levels around 23/1900 UTC. The north-south component varied weakly. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is likely to be Low, with a daily slight chance of an isolated Moderate-class flare from the large region in the northwest of the disc. This region dominates the disc in terms of flare risk and only leaves the disc during Day 4 (27 June), while there are no significant returning regions over the eastern limb.

Solar Wind / Geomagnetic Activity: No CMEs are currently likely to reach Earth. There are two reasonably sized coronal holes on the disc, which may bring elevated or perhaps strong wind speeds, most likely early on Day 2 (25 June).
Geomagnetic activity is expected to be Quiet to Unsettled with a chance of Active intervals and a slight chance of G1/Minor Storms. We usually experience a muted geomagnetic response to coronal hole fast winds near the solstice, which is the reason for the low probabilities of G1. Activity is expected to become mostly Quiet by Day 4 (27 June).

Energetic Particles / Solar Radiation: No solar radiation storms are expected in the period, although there remains a daily slight chance of an S1 or greater event. This is a result of the largest sunspot transiting the western hemisphere, where radiation storms are more likely to connect with Earth.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	20	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	20	20	20
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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